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## Can Food-for-Work Programmes Reduce Vulnerability

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# **Can Food-for-Work Programmes Reduce Vulnerability?<sup>‡</sup>**

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Food-for-work (FFW) programmes are widely touted for their capacity to target poor populations effectively with a reliable safety net, thereby reducing vulnerability due to downside risk exposure, while simultaneously investing in the production or maintenance of valuable public goods necessary to stimulate productivity and thus growth in aggregate incomes. The empirical evidence is mixed, however, as to the efficacy of FFW in any of these dimensions. Proponents cite cases in which FFW appears to have performed as intended, while opponents present evidence of its failures. The development community needs to guard against uncritical acceptance of either naïve or hostile claims about FFW and to develop a better understanding of how, when and why FFW programmes can indeed reduce vulnerability. This paper aims to advance such an understanding.

There exist two distinct, important layers to the question of FFW's efficacy. First, there is the short-run question of whether FFW effectively cushions people who suffer transitory income shocks. Does FFW, as a mechanism for emergency relief, provide an effective safety net, mitigating the adverse welfare effects of adverse real income shocks, especially those suffered by persons beneath or near the poverty line? The answer here turns largely on targeting and timing. In order to provide effective insurance, FFW has to reach those who suffer serious shocks quickly, before serious undernourishment and associated health problems set in. Yet transitory hunger associated with short-term crises represents a relatively small share of hunger worldwide, with estimates ranging 10–25 per cent (Speth 1993, Barrett 2002). Most

malnutrition in the world arises due to chronic deprivation and vulnerability. So in so far as FFW is often aimed, instead, at relieving chronic deprivation and vulnerability, insurance against transitory income shocks may not always be the appropriate benchmark against which to evaluate FFW.

This leads naturally to the second, longer-run question of whether FFW, as an instrument for development, improves livelihoods, either by accelerating recovery from shocks – as in the case of post-conflict rehabilitation – or by fostering income growth and wealth accumulation among the chronically destitute. Does or can FFW facilitate investment, innovation and access to new, attractive opportunities?

If the former function is commonly thought of as a safety net to catch those who are falling, the latter function is akin to a cargo net. People can either climb up it or be lifted up by it. The two functions can obviously be effectively linked, as when an effective safety net obviates beneficiaries' need to liquidate productive assets so as to finance essential current consumption, thereby enabling them to resume productive activities soon after the emergency ends and to climb quickly back out of poverty. There is also the less attractive possibility of people becoming ensnared in the safety net, when the relief function undermines the development function by diverting resources. The central questions about FFW are therefore whether it helps individuals, households and communities in times of stress and whether it (also) facilitates the desired transition from relief to development, i.e. whether FFW reduces vulnerability in the short-term, the long-term, both, or neither.

We try to get at this core question through review of our own and others' work on FFW, drawing mainly on empirical evidence from Sub-Saharan Africa, especially Ethiopia and Kenya. FFW programs have been active elsewhere in the developing world,

especially in south and southeast Asia. But the basic features and issues are the same worldwide and we focus on those geographic areas from whence we know the evidence best. We begin by reviewing the context that has given rise to rapid diffusion of FFW schemes in low-income areas around the world and the simple theory that makes it so conceptually appealing. We illustrate the potential with examples of FFW successes. Then we identify conceptual problems with the simple theory of FFW, likewise illustrating these points with empirical evidence of failures. The concluding section draws out the core lessons to be learned.

## **1 The appeal of food-for-work: a simple theory and some evidence**

FFW has become increasingly popular over the past decade, especially in Sub-Saharan Africa (Devereux 1999, von Braun et al. 1999). The government of Ethiopia, for example, has expressed a commitment to channel 80 per cent of its food assistance resources to FFW programmes (FDRE 1996). Several trends have jointly contributed to food-for-work's sharp growth in popularity over the past generation. These merit brief review.

First, at least since Sen's (1981) seminal work two decades ago, policymakers and researchers have come to understand hunger as being largely determined by individuals' capacity to maintain access to sufficient food to maintain good nutrition, and thereby good health, and much less as a function of local food supply shocks than had been previously believed. Partly as a consequence, FFW schemes have blossomed as regular transfer programmes in chronic food deficit regions as a means of ensuring access to food. Second, in both domestic and international poverty interventions, broad-based concern has emerged about offering benefits without requiring programme participants

to work, leading to a gradual shift from transfers to workfare programmes worldwide. Third, increasing distrust of central government and belief in the subsidiarity principle<sup>1</sup> have fuelled decentralization efforts in myriad public activities. Fourth, the end of the Cold War and growing dissatisfaction with foreign aid have led to a sharp decline in development assistance and a rapid rise in the share of overseas aid consumed by emergencies (Barrett and Carter 2001), although some ‘emergencies’ prove relatively permanent, as in the Greater Horn of Africa region on which we concentrate. Declining foreign assistance volumes have made cash resources increasingly scarce; food is now often the most readily available form of assistance to international charities and developing country governments.

Together, these trends have given rise to ‘developmental food aid’, of which food-for-work is a primary modality. In essence, FFW aims (i) to provide participants with at least the minimum essential quantity of food necessary to maintain good nutrition, (ii) to require work in exchange for this benefit, (iii) to reduce or decentralize both the targeting of beneficiaries and the prioritization and management of public works projects, and (iv) to harness the few resources available, in the form in which they are available (food), to try to maintain a modicum-of development activity in the face of overwhelming relief demands. Among relief and development practitioners, one hears plenty of loose ideas as to how and why FFW should, or does, work. From these, one can fashion a simple, informal theory of FFW that runs as follows.

Assume all individuals consider leisure a normal good (i.e. demand for leisure increases with income), that the opportunity cost of time – as reflected by one’s wage or salary rate, for example – likewise increases with income, and that everyone faces the same market prices for food, capital, land, and other goods and services. Under these assumptions, an unrestricted offer of employment at a low wage rate should be self-

targeting in the sense that the characteristics of the transfer suffice to create incentives for participation that vary across individuals. In particular, because the cost of participation is made an increasing function of one's pre-participation income or wealth, only the needy should find project participation attractive, even absent any administrative restrictions on programme participation.

By creating demand for otherwise unemployed or underemployed labour, FFW provides an income transfer to such persons. This is the first sense in which FFW serves short-term relief objectives. This familiar, Keynesian function can be important even in the absence of shocks, for example by smoothing out seasonal fluctuations in labour demand, and therefore wage rates, in rural areas where rainfall patterns and insufficient irrigation preclude year-round crop cultivation.

The open-ended nature of the programme provides insurance against transitory income shocks through the guarantee of a minimum income to all who are willing to work. So for people who lose their jobs, suffer crop failure or livestock loss on their own farms, or otherwise face a sudden decrease in labour productivity and thus income and welfare, FFW offers a plausible safety net. This is the second sense in which FFW has short-term relief objectives. It provides transfers equal to the difference between the (unobserved) next-best option for self-selected programme participants that can be accessed on short notice. Such insurance is especially important for those lacking access to liquid savings or to credit, i.e. to most of the rural poor in the world. Absent such insurance, their response to significant transitory income shocks typically involves coping behaviours such as migration, sale of productive assets such as land or livestock, or sharp reduction in consumption of food or health services. These strategies often compromise one's future income prospects, thereby turning what might otherwise be a transitory income shock into a permanent one. Such phenomena give rise to stochastic poverty traps and

chronic destitution (McPeak and Barrett 2001, Barrett 2002). Moreover, when agricultural labour productivity falls, small farmers often reallocate labour to activities that adversely affect the natural environment, such as deforestation, wildlife poaching and soil nutrient mining (Barrett and Arcese 1998, Barrett 1999, Barrett et al. 2002). Providing back-up employment to absorb transitorily surplus labour before it generates negative environmental externalities safeguards community assets. This is the first sense in which FFW has a long-term role as a cargo net; people may fall, but they can climb back up without injuring others if insurance in the form of fallback employment is available.

The second sense in which FFW can serve long-term development objectives is similarly linked to its (first) short-run function. By providing predictable transfers, FFW can obviate binding seasonal liquidity constraints. Many small farmers around the world run short of the cash necessary to purchase food, pay hired workers and purchase inputs in the planting and growing season, popularly termed the ‘hungry’ season in many areas. The marginal cost of capital can be quite high, sufficient to preclude purchase of high-return inputs such as chemical fertilizer or investment in capital improvements such as improved soil and water conservation structures or labour-intensive cultivation practices exhibiting sharply increased expected crop yields (Moser and Barrett 2001, Barrett et al. 2002).

In theory, the self-targeting feature of FFW reduces administrative targeting expenses, thereby allowing not only a higher rate of programme participation, but also greater expenditure on materials that, when combined with the labour elicited by the FFW programme, produce durable assets of value to the community. In so far as capital scarcity limits the productivity of the poor, production of public capital goods such as roads, natural resources, schools and health clinics can increase the future income



prospects of all community members, FFW programme participants and non-participants alike. The creation of capital goods through FFW programmes is the second potential long-term benefit of FFW; like a cargo net, it can prospectively lift the poor out of poverty.

Some conjecture that collective investment in public goods through FFW programmes may also strengthen community ties and thereby build valuable social capital. Scholars of community development describe collective action, along with trust, reciprocity, and effective networks, as fundamental to the generation of social capital essential to the production and maintenance of public goods (Flora 1997). Flora concludes that the most successful mobilization of collective action will occur when participation is diverse and inclusive, suggesting a silver lining to targeting errors that result in beneficiary diversity. Indeed, as Sharp (1997) reports in her review of food aid targeting in Ethiopia, many communities consciously invite participation from needy as well as non-needy households in their FFW programmes in the interest of developing greater community ownership and commitment.

The preceding logic describes workfare programmes of all types (Clay 1986, Ravallion 1991, Besley and Coate 1992, von Braun 1995, Ravallion 1999). FFW programmes are effectively workfare with a specific form of payment: food. One of the central questions about FFW's efficacy thus turns on the appropriateness of payment in kind.

There are two conditions under which food seems a desirable form of payment from the beneficiaries' viewpoint.<sup>2</sup> First, where hyperinflation prevails, food can be a very effective payment medium since it retains its real value in the face of rapidly changing nominal prices. Second, by explicitly interlinking labour and food markets, FFW may reduce transaction costs where food markets perform relatively poorly, thereby

increasing access to food (Holden and Shanmugaratnam 1995, Holden and Binswanger 1998). This latter condition is most likely to hold in food deficit regions where spatial arbitrage occurs slowly, at best, in response to local increases in demand. In such settings, cash wages may increase food availability for programme participants less than it fuels nominal food price increases – rather than increased food supply – with the dual effect of failing to provide significant net transfers to participants and adversely affecting non-participants locally. Such spillover damages will most hurt poorer non-participants because they typically spend a larger share of income on food than do wealthier non-participants. Errors of exclusion of the poor – which we discuss in detail below – are especially damaging if the program design fuels local food price rises. Payment in food, by contrast, ensures labourers’ ability to replenish the energy expended in work without hurting non-participants. So where food markets function poorly and significant numbers of poor people do not participate in public employment schemes, FFW may be a far more pro-poor design than cash for work.

It should also be pointed out that if the food is purchased locally, then the extra local demand stimulus benefits net food sellers in the area.<sup>3</sup> If the food is imported from outside the area – FFW programmes are commonly supplied through international food aid – then FFW distribution almost surely displaces some local purchases, thereby depressing local prices and creating adverse supply disincentives for local farmers. Nonetheless, the trucks that haul food in typically do not return empty, so the additional backhaul transport supply fostered by imported food can provide a *de facto* marketing subsidy to farmers and others who export product from the region, thereby mitigating whatever adverse local food market effects result from FFW distributions. Moreover, induced food price reductions benefit food buyers, especially poorer non-participants

because they typically spend a larger share of income on food than do wealthier non-participants.

Whether FFW works as popularly theorized is, of course, an empirical question, and one that has not yet been thoroughly and adequately answered. The simple theory just outlined points to five key testable hypotheses related to: (i) targeting efficacy – including timing of deliveries – because targeting determines both whether FFW indeed proves a pro-poor transfer, as intended, and, derivatively, the extent of any adverse local producer price effects due to substitution for commercially purchased food, (ii) the extent to which accurately timed and targeted FFW transfers prove sufficient to preempt potentially injurious coping behaviours, including liquidation of productive assets, long-distance migration, and sharply reduced food consumption that increases the risk of irreversible injury, illness or death, (iii) FFW's impact in relieving binding working capital constraints and thereby stimulating participant investment or adoption of improved technologies, (iv) whether FFW in fact produces durable public goods of value to local communities, which can include not only physical infrastructure, but also a tradition of cooperative activity and development of local leadership and management skills, and (v) whether or not imported foodstuffs relieve transport bottlenecks, thereby reducing marketing costs for local exporters through a *de facto* transport subsidy.

As yet, there is insufficient empirical evidence on these five hypotheses to be able to make any global statements as to the efficacy of FFW interventions. Sufficient evidence exists, however, to be able to draw provisional conclusions on some of the points, particularly those regarding hypotheses (i), (iii) and (iv). We therefore focus hereafter on those points especially.

## **1.1 FFW commonly generates pro-poor transfers**

The workfare literature more generally, including the sub-literature on FFW, finds strong pro-poor effects of public employment programmes, even once one takes the opportunity cost of participants' foregone private employment earnings into consideration. Previous empirical research has found significant pro-poor transfers resulting from employment guarantee schemes in Argentina, Bangladesh, India, Niger, South Africa, and Zimbabwe, among others, as reflected by probabilities of or net transfers from participation that decline in income or wealth (Dev 1995, von Braun 1995, Webb 1995, Subbarao 1997, Clay et al. 1998, Ravallion 1999, Atwood et al. 2000, Haddad and Adato 2001, Jalan and Ravallion 2001). Part of this success appears to be due to the self-targeting feature of these schemes. Part may also arise due to the decentralization inherent to public employment programmes. If local officials have superior access to information regarding prospective participants' welfare, devolution of targeting authority to local levels may well result in better targeting than could be expected on the basis of proxy indicators typically used by central governments (Alderman forthcoming).

Transfers in the form of food also work well in areas where the cash economy is a man's world while food is the responsibility of women, no matter who procures it. In such cultural settings and if intrahousehold resource competition exists, then food may be a more effective medium than cash for indirect targeting of transfers to needy beneficiaries, particularly children. This matters in many areas, especially where cultural mores dictate that distributions are almost always to men, as in some Islamic communities familiar to us in the Greater Horn of Africa.

## **1.2 FFW relieves liquidity constraints**

The need for public provision of insurance services, whether through FFW or other means, arises directly from financial markets failures. So part of any salutary effect of FFW transfers should come from their impact on participants' financial liquidity. By reducing households' need to purchase food – and often providing cash indirectly through food that beneficiaries subsequently sell – FFW indeed seems to help foster greater net investment in other productive assets than might otherwise occur, whether in natural capital through new soil conservation investments (Barrett et al. 2002) or adoption of improved inputs or production technologies (Bezuneh et al. 1988, von Braun 1995). The effect may be subtle, appearing not as increased investment, but rather as reduced disinvestment, whether of valuable natural capital through erosion-inducing deforestation (Barrett 1999) or sale of high return assets, such as livestock, to meet short-term cash requirements for food, medicines or school fees (Barrett et al. 2001). The clear indication of FFW's effect on relieving binding constraints is that the income gains associated with participation exceed the value of the food received, signalling that binding liquidity or subsistence constraints otherwise restricted participants' livelihood choice, as seems to have been true in lower Baringo District, Kenya (Barrett et al. 2001). FFW may not be a first-best transfer were cash transfers a feasible alternative (it typically is not politically feasible). Yet, FFW provides a transfer, thereby relieving these constraints and permitting improved livelihoods.

## **1.3 FFW projects can produce valuable public goods**

Ethiopia has the largest FFW programme in Africa, the vast majority of which has been channelled into investment in natural resource conservation and road building. Although there are ample cases of failed projects – more on this below – it is equally true that

some projects have generated public goods of lasting value. For example, von Braun et al. (1999) report on the multiplier effects of a FFW-built road in the Ethiopian lowlands, where improved market access directly attributable to that road led to the establishment of water mills and fruit plantations and the revival of traditional cotton spinning and weaving in the three years after the road was built. Well-conceived and managed FFW projects that invest in necessary materials to complement labour inputs clearly can ‘crowd in’ private investment, just as proponents claim.

## **2 Problems with the simple theory and some evidence**

In spite of clear signs of some successes with FFW, their efficacy has come under increased scrutiny of late as evidence on programme shortcomings accumulates. Beyond providing a helpful reminder that FFW is not a cure-all for vulnerability in the developing world, this evidence helps reveal problems with the simple theory sketched out in the previous section. A more qualified understanding of how FFW operates in the complex settings in which it is deployed can help identify contexts in which it is most likely to prove helpful. The next section addresses those lessons learned. First we examine a series of problems identifiable in the simple theory of FFW.

### **2.1 Targeting errors**

While the empirical evidence largely supports the claim that FFW – and self-targeting employment schemes more broadly – generates pro-poor distributions, as discussed earlier, targeting errors can nonetheless be great. One can usefully identify two distinct types of targeting errors: errors of inclusion, wherein benefits are enjoyed by unintended participants, and errors of exclusion, related to target subpopulations’ failure to

participate. A central problem in project evaluation and the scholarly literature surrounding workfare and FFW programmes stems from the conflation of *ex ante* poverty with the experience of transitory real income shocks. FFW programmes can provide regular, in-kind transfers to poor, food-deficit populations, provide insurance to those suffering short-term welfare shocks, or both. With surprisingly few exceptions (e.g. Dercon and Krishnan 2001), little attention has been paid to targeting efficacy as it relates to the consumption smoothing rather than the poverty reducing effects of FFW. Since most donors and analysts are interested in the efficacy of the insurance function primarily, if not exclusively, as it relates to the poor, the distinction is perhaps not of great importance to most readers. But it is nonetheless worth keeping in mind that finding that any transfer program – be it FFW or some other form – reaches the poor is not the same as finding that it effectively insures against real income shocks, nor vice versa. It is important to have the true objectives of the program firmly in mind before embarking on analysis of targeting efficacy.

First, we consider the problem of errors of inclusion. Several recent studies have found evidence that many non-poor participate in FFW schemes (Clay et al. 1999, Devereux 1999, Jayne et al. 1999, Teklu and Asefa 1999, Gebremedhin and Swinton 2000). One common explanation of errors of inclusion is that the FFW wages were set too high, inducing substitution of money wage work in the local labour market for FFW work, and thereby limiting the additionality of the FFW transfer since it largely substitutes for other income that would have been earned in the project's absence (Ravallion et al. 1993, von Braun 1995, Teklu and Asefa 1999). Moreover, when wages are set too high, project managers commonly face excess labour supply and have to ration participation in some fashion. There are good reasons to believe that local elites enjoy a higher probability of selection for participation than do outcasts.<sup>4</sup>

Perhaps the most discouraging form of errors of inclusion relate to ghost workers. Unfortunately, FFW programs (and public employment schemes more generally), have a checkered history of fraud and waste due to lack of enforcement of work requirements under the program. Project monitoring and evaluation efforts in various countries in Africa and Asia have commonly uncovered evidence of significant numbers of ghost workers who were paid for a day's labor but who never actually reported to work, of idle-but-present workers, and of work days only half the length of the agreed labor requirement.

Errors of exclusion are intrinsically related to errors of inclusion. In some cases this is because intended recipients get crowded out by participating elites. Other times, finite transfer resources limit the geographic reach of the programme to a few administratively selected locations (Devereux 1999, Gebremedhin and Swinton 2000). The common feature of these explanations of the targeting deficiencies of FFW is the suggestion that targeting errors can be corrected by a change in operational methods: a lower FFW wage, closer auditing of employment roles, a larger budget to expand geographic coverage, etc.

The evidence suggests, however, that errors of exclusion and inclusion in FFW targeting are due at least as much to structural issues as to operational details. For example, results from a study of food aid targeting in Ethiopia in 1995/96 (Clay et al. 1999) provide empirical confirmation for a growing body of anecdotal evidence reported by Sharp (1997) demonstrating the frequent inability of Ethiopia's food aid system to target the most needy populations, despite its heavy reliance on FFW.<sup>5</sup> Clay et al. (1999) examine the food aid receipts of 4,218 rural households in 1995/96 and conclude that food aid targeting exhibits high errors of exclusion and inclusion at both the *wereda* (district) and household levels.<sup>6</sup> The primary beneficiaries of food aid programmes,



including FFW, were found to be households at the extremes in terms of *ex ante* food availability: those with the least and those with the most.

Several factors account for the high level of targeting error in the Ethiopian case. First, a disproportionate number of female and aged heads of households receive food aid, irrespective of their food needs. Indicator targeting is an established method in the absence of detailed information on prospective recipients' need and resources, but it commonly leads to significant targeting errors nonetheless (Barrett 2002).

Second, FFW can only assist those physically able to work. Since physical disability is strongly, positively correlated with poverty and vulnerability in the low-income world, FFW by construction cannot serve all the poor. As long as the proportion of the poor who are able-bodied is reasonably large, this is not a serious constraint. In some places, especially in Sub-Saharan Africa, work requirements pose an increasing challenge to reaching the poor because of the HIV/AIDS pandemic. As more able-bodied adults fall prey to the disease or need to devote considerable time at home to caring for sick loved ones, this problem is exploding. By sharply increasing the population of poor people unable to work, HIV/AIDS is reducing the potential scope of FFW as both a safety net and as a development intervention. The same is true in post-conflict settings where many of the needy are amputees, blinded, or otherwise permanently incapacitated by the war and where many households are now headed by widows. In Cambodia, the country with the world's highest proportion of population with amputations, errors of omission have proved to be extremely large in FFW projects because the injured and widows typically are unable or unwilling to participate (David Pottebaum, personal communication).

Third, the accuracy of the self-targeting component of food-for-work schemes may be fundamentally limited by factor market failures affecting the nature of local labour supply in low-income agrarian settings. Factor markets in land, labour and capital are often incomplete in poor, rural economies, so labour and cultivable land do not necessarily move freely between households so as to equalize (quality-adjusted) land/labour ratios. Therefore household reservation FFW wage rates – the threshold wage that induces self-selection into the programme – need not be strongly, inversely related to household pre-transfer income unconditionally, as the conventional wisdom assumes, but rather may increase with income only conditional on other structural factors – in particular, the composition of households’ productive asset endowments – that influence shadow wage rates. Barrett and Clay (2003) demonstrate this in the 1995/96 Ethiopia data, showing that elicited reservation wages – which are unrelated to operational details such as programme wage rates or administrative selection criteria – have no significant unconditional relationship to income, but a strong relationship once one controls for (imperfectly tradable) productive asset holdings. The poor are too often assumed to be more ‘labour rich’ than those with higher incomes. In many settings, this is not true. As a consequence, lowering wage rates induces self-selection out of the program by the poor. Barrett and Clay (2003) report that even at a daily wage of five kilograms of wheat – which is higher than the norm in FFW programs in Ethiopia – nearly half of the lowest income quintile self-selects out of FFW programs. Many of Ethiopia’s able-bodied poor appear to have better uses for their time than participation in low-wage FFW programs. Yet, raising FFW wages both reduces the number of prospective beneficiaries, due to the budget constraint, and induces increased errors of inclusion. Barrett and Clay (2003) find that the participation probability of a household with income equal to twice the sample median is at least 80 percent of the participation

probability of a household in the lowest decile no matter the FFW wage rate. The tradeoffs between errors of exclusion and errors of inclusion in FFW programs appear considerable.

Female-headed households are commonly more labour constrained and thus less able or willing to participate in FFW projects, especially those requiring a high minimum level of effort. Although evidence from Bangladesh and India show high female participation rates in employment guarantee schemes in general and FFW projects in particular (von Braun 1995), evidence from elsewhere finds women often miss out on these opportunities (Clay et al. 1998, Barrett and Clay 2003). The archetypal case concerns widows with young children. These households commonly have incomes well below the mean but effective labour availability that is even lower.

Fourth, inertia in the food aid delivery system seems to impede its ability to reach households outside of historically deficit areas (Jayne et al. 1999, 2001).<sup>7</sup> Regular, in-kind transfers into chronically food deficit areas may be effective as poverty reduction efforts and maintenance of some low level of ongoing activity in areas prone to recurring crises may help donors 'ramp up' in years when need becomes acute. Nevertheless, FFW projects developed legitimately in crisis years have been shown to build momentum that sustains them even during peaceful times and relatively good harvest years. In Ethiopia, for example, one of the strongest determinants of household level food aid receipts is the number of years in the past that communities and households within these communities have received such assistance, independent of the actual need for food in these communities/households (Clay et al. 1999, Jayne et al. 1999).

It may be that inertia-related targeting errors reflect authorities' redistributive objectives, which may be unrelated to need. Political economy considerations certainly account for a significant share of targeting errors of food distribution at the level of nation states (Barrett 1998, 2001), and surely play a role within countries and communities as well.

It is also likely that inertia can be at least partly attributed to the progressive build-up of institutional capacity in the food aid delivery system over time, notably the investments made by government agencies and NGOs in such things as personnel, contacts and knowledge of the area, offices, trucks, and institutional reputation. Because of the tremendous flow and momentum built up in the food aid delivery system, altering its course to meet the needs of deficit households in other areas that may not benefit from the same extent of infrastructure and institutionalization, has become a formidable challenge. Given significant sunk costs to food distribution, it may be optimal to limit flexibility to respond to intertemporal changes in need across locations, or even households within a location. It may simply be too expensive to respond to fluctuating needs accurately and promptly. Oftentimes, however, the field staff expert in the logistics of food distribution, who are essential to run a good short-term safety net operation, remain in place over the longer term and must try to make themselves over as development experts, a process that unsurprisingly often fails.

In some cases, national governments, participating donor organizations, and the NGOs charged with implementing food aid programmes, have sought to legitimize inertia in food aid programming by reengineering programmes originally implemented for purposes of emergency relief into instruments of 'development.' The emergence of FFW programmes in Ethiopia since the 1984/85 drought seems to demonstrate this evolution most aptly. Ethiopia's National Policy on Disaster Prevention and

Management (NPDPM) now states that disaster relief should ensure adequate income transfer for disaster affected households, promote self-reliance among beneficiaries, preserve assets to promote speedy recovery, be geared to eliminate the root causes of disaster vulnerability, and contribute to sustainable development (TGE 1993a,b). Any one of those aspirations poses serious challenges. Meeting them all is a tall order indeed.

## **2.2 Timing errors**

The timing of food provision is an oft-overlooked element of targeting. FFW must be available quickly in response to adverse shocks if it is to function effectively as a safety net, in particular, for it to kick in before beneficiaries are forced to divest themselves of productive assets in their quest to meet current consumption needs. Rapid response depends on getting the administrative and logistical machinery for food distribution in place early. This is another sense in which inertia may be beneficial, although Botswana's successful experiences with FFW projects that expand and contract radically in response to need indicate that administrative capacity is the key, not ongoing FFW programmes (von Braun et al. 1999). Nonetheless, inertia in food aid distribution likely helps explain the relatively good performance of FFW programmes in Tigray during the 2000 drought, for they were in place and functional before the rains fell.

The capacity to launch new FFW programmes or to expand existing ones in response to shocks depends on the availability of food in emergency response systems, whether by virtue of advanced positioning of food stocks, as in strategic grain reserves, or by prompt requisition and delivery of food aid in response to early warnings systems, as has occurred in southern Africa during the last two El Niño events. Failure to ensure

sufficient supply in emergency distribution channels can lead to serious delays, as has been routinely a problem in Sudan over the past decade. This problem was evident as well in south-eastern Ethiopia during the 2000 drought, when donors upset with the government about the Ethiopia-Eritrea war manifest their displeasure through a delayed and miserly response to an emergency appeal that had been forewarned a year in advance.<sup>8</sup> Food aid in general does not have a track record of timely response to fluctuating need, although there is evidence that multilateral distribution through the World Food Programme responds reasonably promptly to changing local food production and commercial food import capacity, albeit in modest magnitude due to limited resources (Barrett and Heisey 2002).

Timing matters for at least two reasons. First, untimely food distribution can magnify rather than dampen variability in household dietary energy supply and in local food prices. Unpublished quarterly data collected from 177 pastoralist households in northern Kenya during the devastating 2000 drought indicate that food aid receipts peaked as non-concessional food availability from other sources recovered. Second, disruptions and delays in the provision or distribution of food can undermine participant confidence in the programme – thereby inducing intended beneficiaries to self-select out of FFW – quality of works, or both (Sharp 1997).

### **2.3 Wages: flexibility and form**

We have already discussed how wage rates set too high can induce targeting errors, both by eliciting participation by unintended beneficiaries and by exhausting programme budgets too quickly, thereby leading to errors of exclusion. It is also true, however, that FFW wages must be sufficient to reproduce the physical energy of the labourer. Where private labour demand is weak, prevailing market wage rates may be very low already.

Indeed, wage rates for part-time casual labour, especially during the hungry season, may be marginal supplements to households whose average labour productivity is higher due to self-employment on- or off-farm. Under such circumstances, market wage rates may prove insufficient to sustain the health of fully employed FFW labourers.<sup>9</sup> This is of special concern for female programme participants, who may be more likely to share earned rations with family members, especially their children. In a study for CARE in Ethiopia McCaston (1991) found that women on FFW exhibited deteriorating body mass indices – the primary adult anthropometric indicator of nutritional status – because they shared rations calculated so as just to reproduce the worker's energy expenditures.

The other principle issue concerning wages relates to the form of payment. Should workers be paid in food or in cash? We earlier offered arguments as to when it seems appropriate to pay wages in food. The empirical evidence in favour of payment in kind is limited, however. One issue concerns the extra costs of transport and handling of food, relative to cash wages. Estimates in Bangladesh found that cash wages would reduce total programme costs by 25 per cent compared to food wages (Clay et al. 1998). Given binding budget constraints that limit coverage, too often leading to significant errors of exclusion, one must be able to demonstrate that these added costs are worth bearing.

The second issue related to payment form concerns the fungibility premium participants put on cash over food receipts. Barrett and Clay (2003) find that at low wage rates, up to the equivalent of two kilograms per day of wheat (less than prevailing market wage rates), households' willingness to participate in FFW projects is invariant to payment form in Ethiopia. Thereafter, however, the premium associated with payment in cash jumps. Above a low threshold, far more people will participate in a programme if the wage is paid in cash rather than its equivalent in food. This premium ranges from

12 to 65 per cent, depending on the wage rate offered. This reflects both the need poor people have for cash for other purposes, such as medicines, school fees, or loan repayments – and the transactions costs they incur selling food to meet these cash requirements – and the errors of inclusion inherent to FFW programmes, wherein food surplus households may be relatively labour rich and therefore willing to work for food wages that merely increase their net sales. Northern Kenyan elders tell us routinely that only 50–80 per cent of received grain food aid is consumed as food. Recipients, they say, use the rest as seed, livestock feed or to make home brew.<sup>10</sup> Whether FFW is intended as a regular transfer to the chronic poor or as an insurance buffer for those suffering shocks, food is not always the form in which people most need assistance.

## **2.4 Quality of public goods created**

We previously acknowledged that some FFW projects have been shown to generate valuable public goods. This should not, however, be taken for granted. As any experienced municipal official can attest, production of durable public goods is no simple matter. It takes cooperation within the community, management skills, and significant non-labour inputs. These ingredients are not always available to FFW projects. Where FFW is being used as part of post-conflict rehabilitation, community cooperation can prove especially elusive, as has proved true in Cambodia (Sakko 1999). Since project officers with implementing NGOs are typically selected for their skills at managing food distribution, not at public works project management, necessary human capital is often missing. Moreover, given that one factor driving the rise of FFW has been the increased scarcity of non-food resources from donors, finding funds to purchase complementary inputs has grown increasingly difficult for FFW project managers. Finally, there is commonly a trade-off between locating projects where the



need to provide short-term relief in response to shocks or long-term transfers to combat poverty are greatest versus where logistical feasibility (e.g. access to transport infrastructure to deliver food and supplies) and geophysical suitability for resource conservation or road construction projects (Atwood et al. 2000, Gebremedhin and Swinton 2001).

As a direct consequence of these factors, the assets created using FFW labour are all too often inappropriate, of poor quality, or not maintained. For example, a review of CIDA's FFW programmes in Ethiopia found no evidence of a sustainable long-term increase in household-level food security due to the assets created by FFW projects, whether due to poor choice, quality or upkeep of investments (Clay et al. 1998). Gebremedhin and Swinton (2001) find evidence of compromises in central Tigray, Ethiopia, 1992–95, with project feasibility typically trumping both needs targeting and expected investment returns in determining project location.

When investments require relatively little in the way of non-labour variable inputs, there may be no trade-off between the short-run, safety net objective of FFW – to provide insurance to as many people as possible – that depends on employment generation, and the longer-run, cargo net objective – to increase incomes and reduce vulnerability – that depends on the efficacy of FFW investments. This has, for example, been an argument used to defend the emphasis placed on construction of soil and water conservation structures in Ethiopian FFW programmes. Indeed, both econometric and simulation results from northern Ethiopia suggest that well-timed FFW projects that invest in soil and water conservation structures both help cushion the poor against yield shocks and induce private investment in land improvements that raise long-term agricultural productivity and incomes (Holden et al. 2003).

There is little solid evidence, however, that labour-based methods are either better or worse than equipment-based methods in the construction of public works across the board. In the case of road construction, one of the more common investments of FFW programmes, Stock and DeVeen (1996) conclude that there is broad scope for using labour-based methods. However, the completion time using labour-based methods is often constrained by the availability and willingness of the local labour pool. And even labour-intensive designs commonly need some complementary inputs. In Zimbabwe, insufficient resources for non-wage inputs led to minimal asset creation, much wasted labour and thus negligible longer-term productivity gains from that nation's extensive FFW programmes (von Braun et al. 1999). In Cambodia, the scope for labour-intensive public works proved much narrower once programmes were underway than proponents had initially anticipated (Sakko 1999).

## **2.5 Crowding out private transfers**

Proponents of FFW often claim that it creates social capital by bringing individuals together in work teams on projects intended for collective benefit. We are unaware, however, of any solid empirical evidence in support of this hypothesis.<sup>11</sup> Indeed, it seems that any observable positive correlation between social capital stocks and FFW performance is more likely due to the need for established community-level participation, leadership and cooperation in project identification, design and implementation. Von Braun et al. (1999), discussing relatively favourable FFW experiences in Botswana and Niger, Dev's (1995) study of Bangladesh, and Molteberg's (1997) report on the Relief Society of Tigray (REST), an Ethiopian NGO, all suggest that FFW is most effective in creating durable public investments of value

where strong community work traditions prevail, local institutions exhibit effective organizational capacity, or both.

One must also worry about the possibility that public transfers through FFW or other interventions may crowd out private transfers, thereby diminishing community cohesion. Albarran and Attanasio (2001) find evidence of crowding out of private transfers by public ones in Mexico and Cox and Jimenez (1992) find similar evidence in Peru. We are unaware of rigorous empirical work on this question in the narrower context of FFW. But our experience in pastoral areas of southern Ethiopia and northern Kenya suggest reason for caution. Where detailed ethnographic among the region's pastoralists in the 1960s and 1970s described extensive, active networks of gifts, loans, and transfers among pastoralists to cushion people against shocks due to climate, disease or raiding, more recent data from the same areas show that transfers provide very little in the way of insurance against losses (Lybbert et al. 2001, McPeak 2001). Discussions with elders and long-time observers of the region consistently point to the emergence of ubiquitous food aid distribution, albeit more often as free food than as FFW in this particular region, as giving neighbours and extended family an excuse to reduce support for one another. If FFW and other public programmes do indeed displace private safety nets, a hypothesis still in need of careful testing, then the net benefits of these programmes are obviously less than they might appear through a simple accounting of programme beneficiaries, even after making adjustment for alternative private employment forsaken (Jalan and Ravallion 2000).

The hypothesis that FFW may build social capital, posed in the previous section, may also cut the other way. When participation must be rationed, one all too frequently finds systematic exclusion of migrant returnees, particular ethnic groups or clans by the authorities responsible for choosing participants, with adverse consequences for social

cohesion within the community. Moreover, once individuals have become accustomed to getting paid for contributions to community infrastructure, it can be more difficult to mobilize voluntary labour to contribute to the provision of local public goods, a problem decried frequently by both NGOs and community leaders in the Horn of Africa.<sup>12</sup> An anonymous referee reinforces this point by describing how in Indonesia, customary self-help activities in which people are expected to contribute time to community-based projects (*gotong royong*), may be undermined by public employment programs that now pay people (in cash or rice) for activities traditionally carried out as a public contribution. FFW activities run the risk of subtly shifting the locus of responsibility for community action from community members themselves to outside agencies or government.

## **2.6 Disincentive effects**

Economists and policymakers have long worried about the potential disincentive effects of giving away food, both because transfers may induce beneficiaries to reduce labour supply and that food transfers may substitute for commercial purchases, thereby depressing local food prices and reducing farmers' incentives to produce and to invest in their land (intensification) and traders' incentives to invest in marketing capital. The latter effect is intimately related to targeting errors because the extent of errors of inclusion directly affects the volume of commercial purchases displaced in the market.

The empirical evidence on disincentive effects is nonetheless quite mixed. Much seems to turn on whether FFW is occasional (a safety net) or chronic (an ongoing employment programme with cash wages), whether it generates productive public goods (e.g. roads or soil conservation structures), and how well it is targeted to the truly needy.

Jayne (1998) and Tschirley (1997) find evidence of FFW transfers reducing net food purchases at household level in Ethiopia and Mozambique, respectively. Mohapatra et al. (1999) caution, however, against inferences about net incentives to smallholder farmers on the basis of output price movements alone since FFW, and food aid distribution more generally, can also affect factor prices. We are unaware of any direct empirical study of FFW's effect on food producers' net profits.

Using rapid appraisal and participatory ranking techniques in a single project in Damot Woyde, Ethiopia, in 1989, Maxwell et al. (1994) found no significant disincentive effects with respect to either labour supply or agricultural intensification. They attribute this favourable result to careful targeting – community targeting combined with self-targeting – and to complementary encouragement of intensification by other means.

By contrast, the 1995/96 national survey data from Ethiopia are consistent with the claim of significant disincentive effects. Table 1 shows that labour and land productivity are both sharply decreasing with households' frequency of FFW participation. The differences between groups are highly statistically significant after controlling for farm size, level of intensification, livestock ownership, region, rainfall, and characteristics of the head of household such as education, gender, and age.<sup>13</sup> This is true as well of free food aid distribution, which would be consistent with the labour supply disincentive hypothesis. Unlike free food aid receipt, however, FFW is also strongly associated with reduced investment in agricultural intensification, including improved seed, chemical fertilizers, organic fertilizers, pesticides, and irrigation technologies. Comparing mean intensification index scores, FFW non-participant households are far more likely to intensify than are chronic FFW households, with an average intensification score twice that of the chronic FFW participants.

In the absence of defensible instruments we cannot conclusively dismiss the possibility of reverse causality, and it is surely true that poor productivity in some marginal areas causes food aid receipt, in particular chronic FFW participation. Programme placement effects appear significant in related work using different data from Ethiopia (Dercon and Krishnan 2001). We nonetheless think it important not to dismiss the disincentive effect argument entirely for three reasons. First, previous analysis (Clay et al. 1999, Barrett and Clay 2003) shows food aid distribution is not effectively targeted on the basis of poverty or household *ex ante* food availability, indicators that are more discernible by community and FFW project leaders than are labour or land productivity or intensification measures. Second, important differences emerge between free food aid and FFW in the level of income diversification and agricultural intensification observed although there is no difference in targeting efficacy between these two modalities. In particular, sustained receipt of free food is associated with greater off-farm employment and higher agricultural intensification than FFW. Third, data on farmer perceptions of their own practices (Table 2) show that FFW users are demonstrably more likely to perceive decreased labour availability on their farm and chronic FFW participants are substantially more likely to perceive a decrease in use of fertilizer and other non-labour variable inputs and in crop production overall, relative to recipients of free food aid. On average, in spite of clear, positive cases such that reported by Maxwell et al. (1994), Ethiopian farmers perceive and articulate a negative effect of FFW on their farms. Authentic programme placement effects notwithstanding, farmers' concerns deserve to be taken seriously.

The same concerns are evident in other Ethiopian data. In a survey of 400 households in 16 communities in Tigray in 1998, Hagos and Holden (1998) similarly found that 21 per cent of households stated that FFW participation gave them less time to look after their

farm and animals, while only one percent said FFW participation gave them more time to look after their farm and animals. Forty-three percent stated that it reduced their need to produce own food and only four percent stated that it made them able to invest more on their own farms. The main investment effects of FFW are therefore likely to be the direct effects of FFW.

Holden et al. (2001, 2003) explore the sensitivity of how household agricultural production and investment behavioural responses to transfers respond to alternative structural assumptions through a bioeconomic household model calibrated to survey data collected in Andit Tid, North Shewa, Amhara Region, Ethiopia. Andit Tid received food aid for the first time in 1999 after the *belg* season rains failed for the second consecutive year, a very unusual event. Their modelling exercise finds that production and investment incentives – and consequently food production, agricultural labour use, area cultivated, extent of conservation investments, and soil erosion outcomes – vary depending on structural assumptions about the initial yield effects of conservation technologies, households' access to non-farm income, and whether FFW is used for conservation investment or not in the community. When FFW labour is channelled into productive public goods investment in soil conservation (through construction of bunds on farmland) and households enjoy unconstrained access to the labour market, FFW leads to greater agricultural production and increased conservation investment, as well as reduced land degradation due to erosion. When the opposite conditions hold, however, incentives to produce food and conserve the land are comprized by FFW. Although these are merely modelling results, not empirical observations, they are consistent with and help explain the variation one observes in case studies, where FFW appears to create favourable incentives in some settings, but disincentives to agricultural

production or on-farm investment in others. The devil indeed seems to be in the local factor market details.

### **3 Core lessons: how, when and why FFW works**

So can the competing evidence on FFW be reconciled adequately to generate some useful rules of thumb as to when, how and why FFW can serve effectively as short-term insurance, a longer-term rehabilitation and development intervention, or both? The evidence suggests a reasonably broad set of conditions under which FFW can perform effectively as a short-term safety net, a much narrower set of conditions under which it can also, or instead, advance longer-term ‘cargo net’ objectives related to development and rehabilitation.

Reconciling short-run and long-run objectives is a first-order priority in the design of FFW programmes. Clay et al. (1998, p.19) assert that ‘public works projects cannot effectively achieve both [short-run and long-run] goals simultaneously and should generally have one or other as their primary objective.’ There are clear trade-offs between (i) wage payments and provision of complementary inputs to improve the quality of public works, and often between (ii) selecting project leaders skilled in short-term relief operations or in longer-term development programming, and (iii) selecting programme sites based on logistical feasibility, expected returns to FFW public works, or immediate nutritional needs of local populations. There are circumstances under which food is the primary, occasionally the only, form in which resources are available for development efforts. In such cases, but probably only such cases, long-run objectives might legitimately take priority. As a general rule, however, FFW is most effective as a means of providing short-term insurance against shocks and, when



carefully planned and implemented, can help rather than hinder longer-term recovery and development efforts.

Efficacy in meeting short-run insurance objectives basically hinges on the issues of targeting and timing. Three key geographic criteria matter in FFW targeting. First, it is most appropriate in chronically food deficit zones that are relatively poorly integrated into the commercial food marketing network, else food is an undesirable form for making transfers and likely institutional inertia can lead to substantial targeting errors in subsequent years. If local food marketing systems perform spatial arbitrage reasonably efficiently and transport costs are not excessive, transfers in kind will be far more costly to donors and less desirable for most prospective beneficiaries than cash transfers.

Second, FFW works best where private market demand for labour fails to provide a vent for surplus labour released by those who suffer shocks. If employment opportunities exist but food markets are weak, free food distribution will generally outperform FFW, which works best as a means of resolving multiple market failures in food and labour. Nonetheless, frictions caused by high transactions costs in land and capital markets can lead to considerable variation in the reservation wage rates at which households become willing to participate in FFW projects, thereby limiting the potential efficacy of self-targeting. The very market failures that justify the use of FFW also limit its efficacy in reaching intended beneficiaries, a key limitation that must be kept in mind.

Third, since FFW requires able-bodied participants, it is most effective in reaching vulnerable persons in areas with relatively low rates of chronic illness or injury, i.e., not in areas with severe HIV/AIDS or landmine injury problems. Together, these points imply subjecting FFW transfers to an initial geographic targeting based on the three criteria of food and labour market performance and general morbidity status.

Both theory and the empirical evidence favour following up this three criteria geographic targeting with community targeting before relying on the self-targeting feature of FFW to determine programme participation. There are at least two reasons for the advisability of community targeting. First, the evidence suggests that although community-level targeting can lead to some errors of inclusion due to political patronage, the greater effect is improved targeting to the poor by taking advantage of local knowledge of households' needs and capabilities that is difficult to capture in measurable indicators (Maxwell et al. 1994, von Braun et al. 1999, Alderman forthcoming). Such community targeting can help reduce the targeting errors that result from exclusive reliance on self-targeting in areas where factor market imperfections break down the theorized positive relationship between household income or wealth and reservation FFW participation wage (Barrett and Clay 2003).

The second reason for community-level targeting is that active local participation and leadership in project identification, design and implementation matter to the ultimate efficacy of FFW and other employment programmes (Maxwell et al. 1994, Von Braun et al. 1999, Haddad and Adato 2001). Mitigation of the potential adverse medium-to-long-term effects of FFW requires that attention be paid to the incentives created for agricultural intensification and labour supply patterns and to the choice and quality of the public goods created by the FFW effort.

We stop short of recommending that community leadership and existing social capital be used as a fourth criterion in geographic targeting of FFW projects because there is insufficient evidence on which to conclude whether FFW and similar projects can create community capacity. Indeed, as previously discussed, public employment programs can even undermine extant community work norms. Moreover, extant difficulties in the effective measurement of community leadership and social capital, combined with the

likely political unacceptability of ranking communities by these characteristics, renders this criterion practically infeasible. Nonetheless, the likelihood of success in reaching intended beneficiaries at reasonable current and future cost is plainly greater in locations that do not suffer dysfunctional local politics.

Timely delivery is crucial to any sort of public transfer scheme intended to insure poor subpopulations against loss of health, productive assets and, in the extreme, life. The experience of countries such as Botswana and of episodes like the last two El Niño events in southern Africa underscore the value of early warning systems and careful pre-planning by responsible government officials and cooperating donors and NGOs. FFW programmes need to be active or cued for operation in response to emerging need. If programme design commences with the onset of an emergency, it is almost surely too late for FFW to prove effective. There is much to be learned as well from the contrasting experiences of the World Food Programme, which relies heavily on local purchases and triangular transactions to source food for delivery to FFW programmes and whose food aid flows demonstrably stabilize food availability in recipient countries (Barrett and Heisey 2002), and the United States' PL 480 programme, from which bilateral flows are procured in the United States, subject to considerable delays, and exhibit no discernible effect in responding effectively to fluctuating needs (Barrett 2001).

Reasonably accurate targeting matters for longer-term development purposes, as well. Otherwise, FFW rations displace commercial food purchases at an unacceptably high rate, driving down local prices and depressing investment incentives for farmers and food traders. Indeed, the disincentive effects of FFW are real threats if care is not taken to counteract them through explicit promotion of agricultural intensification and production of appropriate and durable public goods such as roads, schools, and soil and

water conservation structures. Well-targeted FFW needs to be applied to the production or maintenance of public goods (i) in which local or national government would not otherwise be investing at present, (ii) that will be maintained satisfactorily thereafter, (iii) that can be produced at good quality by labour-intensive means, (iv) for which complementary non-labour inputs are readily available, and (v) about which local populations are enthusiastic. This is a tall order, but it is by no means infeasible. There are good cases of where this indeed works. A common denominator is almost always active community participation in the identification of project priorities. Local participation and commitment is essential to overcome moral hazard and information asymmetries between target populations and external agents. Failures of past FFW efforts may largely be due to a top-down approach where the programme administrators lacked the necessary information and local commitment needed to design and implement properly targeted, high quality programmes. A central government with manifest institutional commitment and technical expertise to design and implement effective FFW programs following clear objectives and a simple design seems necessary to program effectiveness, but by no means sufficient. Communities cannot run effective FFW projects in a vacuum, but central governments are typically unable to do so either absent strong collaboration with local jurisdictions and civil society.

Looking to the bottom line, these points confirm that FFW is but one piece of the broader puzzle of insuring the poor against catastrophic loss. The heterogeneity of poor, food insecure people and the communities in which they reside necessitates a portfolio approach in which officials, donors and relief agencies on the ground can draw from a range of different instruments to respond to emerging needs. There is always danger in a 'one size fits all' approach, and this is no less true of food-for-work than for any other type of intervention.



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Table 1  
Comparison of labour and land productivity, income diversification,  
and agricultural intensification across levels of food aid use

Indicators of productivity, diversification, and intensification					
Type and level of food aid use		Labour productivity (Mean income in birr per unit of household labour)	Land productivity (Mean farm income in birr per hectare of land)	Income diversification (Mean % of total income received from off-farm sources)	Agricultural intensification (Mean index score)
	N				
Free food aid (FFA) use					
Non-users	2,345	679	2,053	7.8	0.99
Intermittent users	768	586	1,771	6.6	0.72
Chronic users	72	407	1,154	15.4	0.69
ANOVA significance		#0.001	#0.01	#0.001	#0.001
Food-for-work (FFW) use					
Non-users	2,574	679	2,049	7.5	0.94
Intermittent users	567	534	1,658	8.5	0.82
Chronic users	44	457	910	6.1	0.47
ANOVA significance		#0.001	#0.001	0.052	#0.001
Factors and covariates in ANOVA		Factors:	Factors:	Factors:	Factors:
		-region	-region	-region	-region
		Covariates:	Covariates:	Covariates:	Covariates:
		-farm size	-HHlabour	-HHlabour	-HHlabour
		-TLU	-farm size	-farm size	-farm size
		-intensification	-TLU	-TLU	-TLU
		-inc diversif.	-intensification	-intensification	-inc diversif.
		-age of head	-inc diversif.	-age of head	-age of head
		-sex of head	-age of head	-sex of head	-sex of head
		-educ of head	-sex of head	-educ of head	-educ of head
		-rainfall	-educ of head	-rainfall	-rainfall
			-rainfall		

Table 2  
Comparison of farmer perceptions of change  
by type and frequency of food aid use

Perceived change due to food aid use	Frequency and type of food aid received in past five years				
	Intermittent FFA only	Chronic FFA only	All combinations of FFA & FFW	Intermittent FFW only	Chronic FFW only
	(%)	(%)	(%)	(%)	(%)
Household farm labour availability					
Decrease	7.1	11.1	25.1	24.8	25.8
No change	84.1	76.9	68.3	70.4	70.2
Increase	8.8	10.0	6.0	4.8	4.0
Overall crop cultivation					
Decrease	18.0	28.1	26.9	19.0	41.5
No change	63.8	65.5	57.9	65.3	42.3
Increase	18.3	6.5	15.2	15.7	16.2
Use of fertilizer and other variable Inputs					
Decrease	7.3	2.0	10.4	7.6	28.1
No change	82.8	92.1	77.1	84.5	65.8
Increase	9.9	5.9	10.4	7.9	6.1
Number of observations	441	28	371	203	38

## Notes

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<sup>1</sup> The principle of subsidiarity stipulates that authority and responsibility for actions be devolved to the lowest level capable of undertaking them effectively.

<sup>2</sup> Food may be the preferred transfer medium from donors' viewpoint because they wish to stimulate food consumption, whether for commercial or impurely altruistic reasons (Barrett 2002). We ignore those considerations.

<sup>3</sup> We use the term 'net food sellers' rather than 'food producers' in recognition of the fact that a large share of small food producers in the low-income world are net food buyers. Although farming is their primary activity, meager endowments of land and capital and rudimentary production technologies conspire to leave them unable to meet their own household food demands (Weber et al. 1988, Barrett and Dorosh 1996).

<sup>4</sup> Herring and Edwards (1993) tell an interesting story of manipulation and corruption that arise due to the many different opportunities for local FFW managers to exercise discretion (e.g. over project duration, location, wage rates, payment terms, etc.) and how this may affect participation profiles, even in a seemingly successful programme like Maharashtra's Employment Guarantee Scheme.

<sup>5</sup> Sharp (1997) provides an excellent, broad-based discussion of food aid targeting in Ethiopia and the circumstances under which different methods appear to be relatively more or less successful, based on case studies of various food aid programmes and projects implemented in Ethiopia over the past several years.

<sup>6</sup> These household data derive principally from the Food Security Survey, implemented in June, 1996 by the Grain Market Research Project in collaboration with the Ethiopia Central Statistical Authority (CSA). The sample was randomly drawn as a subset of the CSA's annual agricultural survey. As such, it is a nationally representative sample of rural, agriculturally-based households. The survey addressed a broad array of grain marketing and food security issues including: grain production and marketing, food aid use, impacts of food aid program participation, land ownership and use, household labour and demographics, and various farming practices. It also elicited households' willingness to participate in FFW programs under various payment terms.

<sup>7</sup> Similar inertia is observable in food aid flows at the more aggregate level of individual nations (Barrett 1998, 2001, Barrett and Heisey 2001).

<sup>8</sup> A complicating factor in the case of Ethiopia in 2000 is that several recent studies (Clay et al. 1999, Jayne et al. 1999, 2001) had just highlighted the targeting errors associated with food aid distribution in Ethiopia, which caused donors to question the efficacy of food aid just as the crisis was beginning.

<sup>9</sup> For example, three kilograms of wheat has been the common daily FFW wage rate in Ethiopia for several years, and is above the market wage rate in many places when food prices are high.

<sup>10</sup> In areas of conflict, as in parts of northern Kenya, people would rather hold cash than food because the former is far easier to carry in flight. When people have to evacuate on short notice due to civil strife, they will carry cash but not food rations they have received.

<sup>11</sup> This may be due in part to the fact that empirical measurement of social capital is fraught with myriad conceptual and methodological problems.

<sup>12</sup> We thank Patrick Webb for reminding us of this important issue.

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<sup>13</sup> Labour productivity is computed as total household income (in birr) from farm (value of production) and non-farm sources per household unit of labour. Household members aged 15–65 are valued at 1.0 labour units, while children ages 10–14 and the elderly aged 65 and over are valued at 0.5 labour units.